

073206T4CEN

CIVIL ENGINEERING LEVEL 6

CON/OS/CET/CC/05/6

Apply Workshop Technology Practices

March/April 2026



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

WRITTEN ASSESSMENT

Time: 2 HOURS

INSTRUCTIONS TO CANDIDATE

1. This paper consists of **TWO** sections: **A** and **B**.
2. Answer **ALL** questions in section A and **ANY THREE** (3) questions in section B.
3. Marks for each question are indicated in the brackets.
4. Candidates are provided with a separate answer booklet
5. Do not write on the question paper.

This paper consists of THREE (3) printed pages

Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.

SECTION A (40 MARKS)

Answer ALL the questions in this section.

1. Personal safety is critical when operating powered woodworking machinery in a workshop environment. State FOUR Personal Protective Equipment (PPE) that must be worn when operating a circular saw in a carpentry workshop. (4 Marks)
2. Concrete mixers are commonly used in masonry workshops and require strict adherence to safety practices. Explain TWO safety precautions that should be observed when operating a concrete mixer in a masonry workshop. (4 Marks)
3. Different hand tools are designed for specific applications in plumbing installations. Differentiate between a pipe wrench and an adjustable spanner in terms of their specific uses in plumbing work. (2 Marks)
4. Testing electrical circuits is essential for safe electrical installation and maintenance works. Name TWO electrical tools that can be used to test for the presence of current in an electrical circuit. (2 Marks)
5. Pipe-bending machines pose potential hazards if not properly handled in plumbing workshops. State THREE safety rules that must be followed when using a pipe-bending machine in a plumbing workshop. (3 Marks)
6. Accurate vertical alignment is important in masonry construction works. State TWO purposes of using a plumb bob in masonry construction work. (2 Marks)
7. Electrical installation works are governed by recognized regulations and standards. What does the abbreviation IEE stand for in electrical installation regulations? (2 Marks)
8. Selection of appropriate pumping equipment ensures efficient domestic water supply systems. Explain THREE factors that should be considered when selecting a water pump for a domestic water supply system. (6 Marks)
9. Proper joining methods improve the strength and durability of timber structures. Name TWO common joining methods used in carpentry for fixing wooden members together. (2 Marks)
10. Proper maintenance of hand tools improves efficiency and prolongs their service life. Explain TWO reasons regular cleaning and oiling of hand tools is essential in a mechanical workshop. (4 Marks)
11. Electrical symbols are used to represent components in circuit wiring diagrams. Sketch and label THREE common electrical symbols used in circuit wiring diagrams. (6 Marks)

12. Concrete compaction is a key process in achieving quality concrete structures. State THREE advantages of using a vibrator during concrete placement. (3 Marks)

SECTION B (60 MARKS)

Answer Any THREE Questions in This Section

13. During the installation of a domestic water supply system, pumps are commonly used to lift and distribute water.
- a. With the aid of a labeled diagram, describe the working principle of a centrifugal water pump. (12 Marks)
 - b. Explain FOUR applications of a reciprocating pump in construction works. (8 Marks)
14. Electrical circuits form the basis of all electrical installations in buildings and workshops.
- a. Sketch and label components of an electrical circuit. (8 Marks)
 - b. Explain SIX safety requirements that must be observed when performing electrical installations in a workshop. (12 Marks)
15. Internal combustion engines are widely used in construction equipment and machinery.
- a. Describe FIVE major components of a four-stroke petrol engine. (10 Marks)
 - b. State FIVE common faults in water pumps and suggest ONE remedy for each fault. (10 Marks)
16. Timber and plumbing materials are essential components in building construction and services.
- a. Explain FIVE importance of wood seasoning in carpentry and joinery. (10 Marks)
 - b. Describe FIVE plumbing materials commonly used in water supply systems. (10 Marks)

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